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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/791,756	03/04/2004	Jin-ho Lee	030681-636	5260

21839 7590 10/20/2005

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EXAMINER

GEORGE, PATRICIA ANN

ART UNIT	PAPER NUMBER
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1765

DATE MAILED: 10/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/791,756

Applicant(s)

LEE ET AL.

Examiner

Patricia A. George

Art Unit

1765

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 04 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 9/3/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

It is noted that there is no detailed description of figure 5.

### ***Trademarks***

The use of the trademark PYREX® has been noted in the specification of this application. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over  
Jerman et al. of USPN 6,469,415 in view of Sparks et al. US 6,062,461

Jerman illustrates method limitations of claims 1 and 2 for forming a micro-actuator including: forming the components of the actuator from wafer by Deep Reactive ion Etch (DRIE) (col.3, l.6-7); such components are a first and second comb drive assemblies (fig.19): alternating comb electrode fingers (fig. 10 792 and 797) on both top and bottom structures (fig. 10, 791 and 796), formed on a substrate (fig. 4, 526) which is written on a stage, and are provided with mechanisms to limit the movement of the combs (fig.9, 811) and framed support (fig.11, 931), written on torsion bar. Jerman's stage has a second layer (fig. 4, 699), with a predetermined height (fig.4, 671), which corresponds to the first frame layer height. Jerman teaches a plurality of fixed comb-type electrodes (fig 5, 8, 9, 10) of varied length from side to side as shown in figure 5; and joins the top and bottom structure by forming a fusion bonding layer between frame layers (fig.4, 669).

Jerman does not teach: to form one body by forming a eutectic bonding layer between the first frame layer and second frame layer, as in claim 1; forming a top metal layer, as in claim 2; forming a metal eutectic bonding layer, at predetermined pressures and temperatures as in claims 5-7; or joining the bottom of the second plate to the top of the base plate by anodic bonding, as in claim 8 and 9.

Sparks et al. teaches a process for bonding wafers (ti.) by forming a variety of metal layers to form a soldering ring, which is written on anodic, including a plating seed layer for micromachines (col.6, l.23-25), using a variety of metals (col.5, l.35-36),

Art Unit: 1765

preferred process of eutectic (col.5, l.40) bonding, at temperatures sufficient to avoid thermal damage (col.2, l.28-29), that can be performed in a suitable vacuum at an applied force (col.6, l.1-3), as in claims 2 and 5-8, and 9.

It would have been obvious to one of ordinary skill in the art at the time of invention was made, to include the method of bonding MEMS , as in the method of Sparks et al., with the method of forming MEMS, as in Jerman et al., because Sparks et al. teaches it avoids damage to the device and simplifies the process, which returns a cost reduction.

As to claims 3 and 4, Jerman et al. teaches signal leads (fig.9, 816 and col.18, l.60), written on lines, extends from the first end portion 806a of the spring member 806 of first spring 783 to a bond pad 817 for permitting electrical control signals to be supplied to the movable second comb drives, which is written on having a predetermined patterned corresponding to the constituent elements. Jerman also forms the combs and the area perpendicular to the base of the combs through DRIE and Lithography Galvanometric and Abformung (LIGA) (col. 3, l6-7), which is written on at predetermined heights and widths, through use of a mask layer on the region corresponding.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: USPN 6,262,463 and US 2002/0113296.

Art Unit: 1765

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patricia A. George whose telephone number is (571)272-5955. The examiner can normally be reached on weekdays between 7:00am and 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on (571)272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
PAG  
09/05

Patricia A George  
Examiner  
Art Unit 1765

**NADINE G. NORTON**  
**SUPERVISORY PATENT EXAMINER**

